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Moses Maimonides: Rabbi of Medicine

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The great medieval Jewish philosopher Moses Maimonides was also a practicing physician who contributed a number of important works to medical literature. Modern students of these treatises have made extravagant claims about Maimonides' scientific outlook and have attributed to him important discoveries and innovations. Viewed in its historical and religious context, Maimonides' medical work appears more explanatory than exploratory, though still of considerable interest to students of both the philosophy of science and the history of medicine.

If religion is the mother of science, this relation, like all maternal connections, is at times a complex and stormy one. Belief in an orderly-minded creator has inspired scientists from Ptolemy to Einstein with the faith that the physical world operates according to rational, self-consistent laws discernible to the human mind. Nevertheless, although in motivation as close as any infant to its mother, the child science remains stubbornly independent on the question of proof and the nature of final authority. For the scientist, congruence with the observed world is the ultimate test of validity; for the religious thinker, definitive proof rests in reconciliation with the revealed canons of faith.

This conflict is illustrated with exceptional clarity by the life and work of the Rabbi Moses Ben Maimon, a medieval scholar and religious leader who was also a physician of more or less scientific disposition. Maimonides is a crucial figure in both the history of religion and the history of science. As a religious thinker, he took the first steps toward the scientific age by achieving a reconciliation of Greek natural philosophy with traditional Jewish faith. A review of his medical writings reveals how this belief that the two traditions could be reconciled without contradiction was important as a permissive condition for the development of a scientific approach. At the same time, an assessment of the limitations of Maimonides' medical achievements illustrates how a fundamental commitment to the spiritual values of religion places significant constraints on scientific thought, both in the formulation of hypotheses and in the evaluation of what is observed empirically.

Maimonides' medical writings fall into two broad categories. Numerous passages in his religious works refer to matters of health and questions of natural philosophy; together these reflect the "basic science" of medieval Jewish medicine. The second category, based on Maimonides' experience as a practitioner, consists of his clinical observations and advice and his commentary on Galen. Maimonides' religious-medical writings precede his purely medical work both philosophically and chronologically and must be discussed first if his role in the history of science is to be accurately assigned.

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RELIGIOUS-MEDICAL WORK

As Maimonides' medical work must be understood in its religious context, so his religious work should be viewed against the background of the political history of the twelfth century. Many educated people casually classify this period of history with the "Dark Ages," a time when the peasants of Europe snivelled in their hovels munching onions while their feudal lords, when not promoting enclosure or otherwise abusing the sheep, devoted themselves to the chivalrous arts of rape and pillage. In fact, during this period there flourished in Spain, North Africa, and the Middle East a civilization as enlightened as any the world has ever known. This was the Islamic empire of the Caliphs and Sultans which, for a thousand years after the death of Mohammed in 632 A.D., spread east and west from centers in Syria and Iraq uniting, first by force and then by language and religion, the vast territories that lie between Europe and the Orient. Many of the Moslem kingdoms were indeed feudal in nature, but at the time of Maimonides' birth in 1135 A.D. in Cordova, a remarkable spirit of intellectual and religious freedom prevailed in the western sector of the Islamic empire [1]. While the absence of persecution served the secular interests of the Jewish community in Spain, at the same time it fostered a religious "identity crisis" of major proportions. During Maimonides' adolescence, a political revolution within the Moslem community abruptly turned toleration into repression and persecution; after this, the national identity of the Spanish and North African Jews was further undermined by the practice of forced conversion and the consequent estrangement of the Arabic-speaking Jewish community from the Jews of Europe. Maimonides eventually escaped from the repressive environment of the Spanish Caliphate, only to spend his adult life as the leader of an internally divided Jewish community in Cairo, where again the paramount question facing the nation of Israel was one of self-definition, the need to isolate the fundamental aspects of Jewishness that could weld the warrings sects into a national unit capable of resisting engulfment by the surrounding Moslem community.

Maimonides' major contribution to his people was his effort to simplify the complex body of Biblical law and Talmudic commentary, to put it in a form that was readily accessible and acceptable to Jews of many different sectarian interests and levels of scholarship. In order to rationalize the canons of his faith, Maimonides applied the principles of Aristotelian ethics and logic to a body of religious knowledge which had previously been organized only chronologically. While this represents a significant innovation in the intellectual tradition of Judaism, such an approach was already well-established in contemporary Islamic medicine, science, and philosophy.

Analyzing the Talmud, Maimonides sought to separate assumptions from conclusions and to assign relative weights to statements based on their position in the hierarchy of logic. He went so far as to codify his assumptions into a creed that he used to define the Jewish identity. In his first major work, *Commentary on the Mishnah*, which appeared in sections from *c.* 1159–68, Maimonides thus enumerates 13 precepts that establish the boundaries of the nation of Israel [2]. In Maimonides' personal view, a man could be excluded from the Jewish community by failure to accept one of these "root principles" [3]. This reduction of a national and cultural identity to a religious one has never been universally accepted, but for the purposes of this discussion it is important only to note that in his creed Maimonides affirms the belief that the universe was created *ex nihilo* by the one God of Abraham, Isaac, and Jacob, whose attributes are unknowable and upon whose freedom and power there can be no constraint. Though these points may seem abstruse to the modern reader,

they were of great practical importance to Maimonides and had a profound, and clearly discernible, effect on his medical ideas.

Another aspect of the *Commentary on the Mishnah* that contributed to Maimonides' medical development was the doctrine of the Mean, which allowed him to steer a safe course through the strongly stated exhortations of the prophets and previous commentators. Again drawing on Aristotle, Maimonides cautions his followers to beware of extremes even of piety and religious observance and counsels them to choose a middle path that all can follow [4]. When Maimonides later turned to matters of health he adopted a similar position and became an eloquent advocate of moderation in therapy and a restrained style of life.

Following the *Commentary on the Mishnah*, Maimonides produced his masterwork, the *Mishneh Torah*. In his previous work he had followed the traditional practice of making his comments as footnotes to laws enumerated in Biblical order. In the *Mishneh Torah*, Maimonides undertook to divide the law into subject categories, placing together contradictory passages from different parts of Scripture and Talmudic commentary. Assuming that there can be no irresolvable contradictions in a law that flows from the single source of all existence, Maimonides developed a methodology for resolving apparent inconsistencies by correcting past mistranslations in the text of the Law and by viewing certain awkward statements as being metaphorical rather than literal representations of the truth [5]. This methodology is similar to the approach he adopted later in trying to reconcile medical theory as presented in Galen and observed clinical fact. It is important to note that although Maimonides' work represents the first attempt in Jewish history to apply secular philosophy to Divine Law, only his methods were rational and logical. The core of his endeavor is his acceptance of the Divine inspiration of the Law and its necessary consistency on this basis. His methods were rational and philosophical—scientific in a word—but his motivations and assumptions were entirely religious.

Less important to an understanding of Maimonides' role in the history of scientific thought, but still interesting, are those parts of the *Mishneh Torah* that deal specifically with health. In the *Hilchoth Deoth*, a section on ethics, Maimonides states that the preservation of one's own health is a sacred duty because "a perfect body is an essential to the proper serving of God" [6]. He takes the position that illness is, for the most part, the result of overindulgence and man's neglect of his own health. He then goes on, in exhaustive detail, to set forth the principles of healthy life: the importance of food, cleanliness, and self-control. These were principles from which he never deviated in his subsequent medical works.

Maimonides' last major religious work is the one that places him most squarely in the mainstream of the history of science. This is his *Guide to the Perplexed*, a metaphysical tract in which he makes explicit his views on the relation between religion and natural science, discussing in detail the nature of religious and empirical knowledge, and describing his own methods for evaluating truth in both spheres. He reaffirms his belief that nothing in religion can offend man's reason and wrestles with the apparently arbitrary laws of the Bible, the problem of the existence of evil, and the question of the nature of knowledge and how knowledge relates to divine inspiration [4:118–138].

Maimonides summarized his theory of knowledge in a letter to the Jews of Marseilles in 1194:

> Know, my lords, that man ought to believe only one of three things—firstly, something which he can clearly grasp through pure reason; . . . secondly, something which he can perceive with one of his five senses; . . . thirdly,

> something which he learns from the prophets and sages of blessed memory, that is from trustworthy authorities.
>
> He, however, who believes a thing which does not fall under any of these three categories, of him it is said, "The simple believeth everything." [7]

This passage exemplifies what might be called a "protoscientific" method. Maimonides emphasizes the need for proof by standards upon which all parties can agree and acknowledges that data from the real world can be important in obtaining this proof. But he has not taken the crucial step of saying that among intuitive hypotheses or statements of past authorities only those which can be validated empirically can be accepted. In evaluating Maimonides' religious and ethical views, this point is trivial. It is only when these principles, developed to deal with religious questions, are generalized to medicine that their implications for scientific philosophy become clear.

In summary, Maimonides' religious writings are all based on his belief in the one God of Israel, and its corollary that there can be no irresolvable contradictions in truth that flows from a unitary source. A system of ethics follows from this belief, and in these ethics physical health plays a prominent role. Furthermore, the commandment to be well can be fulfilled only through adherence to the doctrine of the mean, by the exercise of moderation and good judgment in all things. Finally, this belief in tolerance and rationality implies a balanced view of the nature of knowledge and standards of truth, a view that, while it cannot be called scientific, was an important step in that direction. These religious writings establish a framework for the study of Maimonides' medical work, which is discussed below.

MEDICAL WORK

Maimonides probably took up the practice of medicine in 1166 or 1167, when he was already a rising leader of the Jewish community in Cairo. Of all worldly occupations, Jews considered medicine to be the most honorable, and the rabbis of the Middle Ages often supported themselves in this way. Although religiously Jews were considered beyond the pale by Christians and Moslems, their medical skills were highly valued. During medieval times it was a crime punishable by death for a Jewish physician to attend a Christian patient, because of the doctrine that suffering was ordained by God and should not be aborted. However, the Pope was specificially exempt from this prohibition, and throughout Europe royal and papal physicians were often Jewish [8]. Maimonides himself rose to become physican to the Grand Vizier of Cairo, and then to the Sultan himself. After the death of Saladin in 1193, he remained as physician to the royal family until his own death in 1204.

As Imperial physician, Maimonides was forced to renounce more and more of his religious vocation in order to fulfill his clinical responsibilities. A letter to a disciple vividly describes the life of his later years.

> My duties to the Sultan are very arduous. I am obliged to visit him every day, early in the morning, and when he or any of his household are indisposed I dare not quit Kahira, but must stay during the greater part of the day in the palace. It also frequently happens that one of the royal officers falls sick and I must attend to his bidding. Hence, as a rule, I repair to Kahira very early in the day, and even if nothing unusual happens, I do not return to Mizr until the afternoon. Then I am almost dying with hunger. I find the antechambers filled with people, both Jews and Gentiles, nobles and common people, judges and bailiffs, friends and foes—a mixed multitude, who await the time of my

> return. I dismount from my animal, wash my hands, and go forth to my patients. I entreat them to bear with me while I partake of some slight refreshments, the only meal I take in the twenty-four hours. Then I go forth to attend to my patients, write prescriptions and directions for their various ailments. Patients go in and out until nightfall, and sometimes even until two hours and more in the night. I converse with, and prescribe for them while lying down from sheer fatigue, and when night falls I am so exhausted that I can scarcely speak. [8:11]

Maimonides' entry into medicine occurred at the end of a rich period of Arabian medical scholarship. Avicenna, who died two years after Maimonides' birth, had left as his legacy an immense treatise compiling the medical knowledge of the day, presented along with his metaphysical and philosophical speculations. Although Avicenna was of the Eastern Caliphate, Maimonides was well-acquainted with his *Canon*, which he translated into Hebrew [9]. In the next generation of scholars, Avenzoar promulgated a doctrine of medicine based on observation and experience. Maimonides mentions in his writings that he learned of this man's work through discourse with his son, Abu Bakr [10]. Maimonides' contemporary, Averroës, shared his interest in developing a system of medicine based on the philosophy of Aristotle. The works of the two men often appear together, and Maimonides is credited with helping transmit Averroistic medicine to western Europe [9:97].

Maimonides approached medicine in the same rationalistic spirit that he brought to the study of religion, and there are striking parallels to be found in his methodology as a scholar of both religion and medicine [11]. His first medical works were a compendium of the works of Galen and a book of commentary on aphorisms he attributed to Hippocrates [12]. Maimonides' work on Galen was a systematic codification of prior authority similar to the *Mishneh Torah*, and the commentary on Hippocrates reflects the same mastery of past scholarship in its original form that pervades the *Commentary on the Mishnah*. Maimonides' next medical treatise was *Pirke Moshe*, a collection of 25 chapters presenting the ideas of Galen, Hippocrates, and various Arab physicians as a series of aphorisms. In this work, known in English as the *Medical Aphorisms of Moses Maimonides* [11], the sage places special emphasis on places where previous authors appear to be inconsistent and tries to resolve these contradictions by reference to problems of translation, to the work of other authors, and to his own clinical experience. This approach approximates the method employed in *Mishneh Torah*. Finally, there is Maimonides' essay "On the Preservation of Youth," or *Regimen Sanitas* [13] and a treatise known by various titles, including *Responsa* and *De Causis Accidentium* [14].[1] These were written for a nephew of the Sultan who suffered from severe melancholia and hypochondriasis. In these works, Maimonides sets forth the principles that should guide physician and patient in the treatment of disease and the pursuit of health, much as he clarified his philosophical principles in the *Guide for the Perplexed*.

Maimonides' other medical works include treatises on hemorrhoids [14] and asthma [15], written for the some royal sufferer. In 1190, "on account of the increase

[1]Although Maimonides' authorship of this work has been the subject of some debate (Levy R: The *Tractatus de Causis et Indiciis Morborum*. In Studies in the History and Method of Science. Edited by C Singer. Oxford, Clarendon Press, 1917, pp 225–234), the recent discovery of a thirteenth century Hebrew manuscript in which the text appears along with other works known to be by him seems to validate its authenticity. (Leibowitz JO, Shlomo M (eds): *Moses Maimonides on the Causes of Symptoms*. Berkeley, University of California Press, 1974, pp 34–35).

of a large number of concubines" [16], Maimonides' patron requested an essay on sexual intercourse, which his physician supplied. Other works include a text on poisons and their antidotes and a comprehensive glossary of drug names [12].

One medical essay that Maimonides probably did not write is the "Daily Prayer of a Physician Before Visiting a Sick Man" or "Oath of Maimonides," long attributed to his name. This poetic statement of dedication to the art and science of medicine first appeared in the *Zeitschrift Deutsches Museum* in Germany in 1783 "from the manuscript of a 12th century Jewish physician in Egypt" [17]. The first Hebrew version was a translation from the German that appeared in 1790. The manuscript has never been found, and Maimonides' name was specifically attached to the prayer only by inference; other authors have also been suggested [18]. Although the question remains unsettled [19], it is possible that the prayer was composed around the time it first appeared. Many have remarked that it has a surprisingly modern ring to it; it may in fact be a modern prayer.

It is a joy to examine Maimonides' medical works for evidence of his perspicacity and clinical judgment. Two of the best examples are his analysis of the motor and sensory functions of nerves [11, I:67–68] and his aphorism describing the connection between phobic anxiety and depression [11, I:101]. His description of pneumonia competes favorably with modern works on the subject.

> The basic symptoms which occur in pneumonia and which are never lacking are as follows: acute fever, sticking pain in the side; short, rapid breaths, serrated pulse and cough mostly [associated] with sputum. Occasionally, a cough without sputum occurs which signifies imminent death or prolonged illness. [11, I:110–111]

While Maimonides credits the foregoing observation to Galen, there is much to admire in his original work as well. In treating a poisonous bite, for example, he recommends placing a tourniquet above the wound and leeching out the venom by sucking or bleeding. In the same work (the treatise on poisons) he describes rabies, including recognition of its prolonged incubation period [20].

Maimonides' work abounds with examples of his medical skill. It is even more interesting, however, to turn to those passages that reveal the close ties between his medical work and his religion. This connection may be seen in the nature of the advice given in his treatises and in his discussions of problems in medical philosophy.

MAIMONIDES AS A SCIENTIST

Maimonides' medical writings coincide most closely with his religious works in the matter of ethics [10]. Maimonides' ethical ideal of the Mean appears over and over in his medical works: in his disapproval of polypharmacy, in his belief that almost all illness is due to overindulgence and carelessness. It stands out sharply on every page of his *Regimen Sanitas*, in which he advises his patron to live a well-regulated life of moderation and self-control in regard to eating, exercise, and sexual intercourse.

It must be admitted that in his treatise upon this last subject, Maimonides deviates from his principles in prescribing various aphrodisiacs and methods whereby the prince could increase his sexual activities beyond the levels appropriate for a moderate man. This discrepancy is the result of the cultural differences between the doctor and patient. In medieval Judaism sexual intercourse, although recognized as a pleasure, was condoned mainly for the purposes of procreation. In the polygamous tradition of Islam, however, it was a generous man's ethical duty to sleep equally with

all his wives. Hence, Maimonides' treatise, *On Sexual Intercourse*, although an uncommon kind of book in the Jewish tradition, was only one of the many sex manuals in Moslem literature. Although he conformed to Moslem standards in writing the treatise, Maimonides editorializes freely and reminds his patron that he would do well to follow a moderate path [16:17–18].

If Maimonides' clinical practice followed from his religious ethics, his medical science was an expression of his epistomology, specifically, the principle that there can be no genuine contradictions between two aspects of the same truth.

In the twenty-fifth chapter of his book of aphorisms, Maimonides seeks to apply his unitary doctrine to questions of medical science, to resolve various inconsistencies in Galen's work and contradictions between Galen and other authorities. Although this principle enables Maimonides to recognize these contradictions, it fails to provide him with the tools for resolving them scientifically. Thus, at the end of every pair of conflicting statements mentioned in this chapter he makes such recommendations as "this requires thought" or "this requires deliberation." Maimonides' devotion to logic, while admirable and advanced for his time, does not by itself make him a scientist. One may debate, logically, how many teeth there are in a horse's mouth, or how many angels can dance on the head of a pin. Science imposes the further requirement that one obey the motto of the mongoose, namely, "Run and find out" [21]. Thus it is important to note that Maimonides does not suggest that the way to choose which of two conflicting statements is correct would be to make predictions from each, examine the real world for evidence of their validity, and discard whichever hypothesis fails to correspond to observation.

We are now in a position to evaluate Maimonides as a scientific thinker. Many extravagant claims have been made on his behalf—for example, that he recognized the bacterial etiology of disease, or that one of his fungal wound dressings represents the discovery of antibiosis 800 years ahead of its time. It has even been claimed that Maimonides was the first to recognize the circulation of the blood [11, I:10–12].

The last conclusion is based on the following passage from his *Aphorisms:*

> Do not consider the arterial [blood] movement in three dimensions as movement of a cubic form or a pointed shape called a cone and the like, but consider it as movement in one direction as the movement of a ball so that the movement of the artery which produces sensation makes a complete revolution. [11, I:91]

Elsewhere he mentions that there must be connections between arteries and veins, although none are visible to the naked eye [11, I:32].

To infer from these fragments that Maimonides had solved the most complicated problem in ancient physiology is to misread the evidence. In the first place, in all his other writings he advocates classical Galenic physiology, including the notion that blood ebbs and flows in the veins while the arteries conduct mostly vital spirits with small amounts of blood [11, I:29]. More importantly, it was not Harvey's belief in the circulation of the blood that made him a scientist but rather his methodical treatment of the evidence and disproof of contrary hypotheses. Although Maimonides possessed the tools of logic, he would never have conducted an investigation such as Harvey's, for his religious beliefs would have prevented him from assigning any weight to the results.

It is clear from the way Maimonides approaches other physiologic problems that when he is faced with a discrepancy between something he knows from his religious

principles and something he has observed for himself or read in Galen, he considers the religious principle to have incontestable validity. This influences both his opinion about what constitutes an important problem and the way he attempts to solve it. Thus, he accepts willingly classical views on the meaning of fever [11, I:203–223] or the humoral explanation of gastrointestinal disease [11, I:247–261], but he takes strong exception to Galen because of a trivial statement about the nature of eyebrows and eyelashes. It is worth going over the relevant passages in detail because of what they reveal about Maimonides' philosophical method as it applies to medical science.

Maimonides first quotes Galen directly:

> "Our Creator has thus caused the eyelashes and eyebrows to be obligated to remain at one and the same length, because this is most appropriate and most correct. It is because He knew that this hair had to be so that He placed something thick and hard under the lashes, resembling cartilage, which extends the length of the eyelid. He also spread out a hard skin under the hair of the eyebrows, which adheres to the cartilage of the eyebrows. This is because it would not suffice in order to retain this hair at one and the same length [permanently], that the Creator would wish it to be so; *likewise, if the Creator would desire to convert a stone into a man instantaneously, without the stone undergoing the corresponding alteration, this too would not be possible.*" [11, II:209–210]

This passage provokes lengthy and furious argument from Maimonides, who responds,

> . . . This falsifying and inexact Galen, extremely ignorant in most things of which he speaks except in the art of medicine, repeatedly states and explains that he is skeptical on this point, namely the basic principle of the creation of the world, and does not know whether it is eternal or created. By heaven, how could he be skeptical on this principle if his entire treatise here dealing with the hair of the eyebrows and eyelashes is based upon the principle of the eternity of the world? Therefore he asserts that anything which is not inherent in the nature of matter is not possible and one cannot attribute to God, Blessed be He, the ability to control it, even if He wished it a thousand times. He further states that [Divine] will is not sufficient, unless the matter is adequate. [11, II:216]

Here Maimonides reveals the fundamental incompatibility between scientific reasoning and belief in the *Creatio ex Nihilo.* He derides Galen for his belief in the eternity of the universe, with its corollary that if matter is eternal and immutable, so are the laws governing the forms it may take. Although this is the fundamental principle of science, to Maimonides it is heresy, for it implies a limitation on the power of the Almighty, who alone may be considered eternal and unchanging. In insisting upon this position, Maimonides remains true to his religion but sacrifices his scientific principles, for without faith that what is true of one form of matter is true of all similar forms, and will be as true a thousand years from now as it is today, there can be no inference from controlled observation, no formulation of crucial experiments, and no disproof of contrary hypotheses. Stated simply, for one who believes literally that God can intervene at any moment to change the rules ordering the natural world there can be no scientific method and no scientific proof.

CONCLUSION

In summary, Maimonides emerges from his work as a great religious philosopher and an astute clinician in the fullest sense. He exhibits all those qualities of mind that produce good clinical judgment: compassion, common sense, the ability to learn from experience, and a healthy skepticism toward established authorities. In any age such qualities are to be admired, and, compared to the excesses of the heroic medicine which followed a few centuries later, the Arabic-Jewish medicine of the medieval period seems remarkably humane and advanced. Given the modern tendency to equate scientific with good, however, it is important to point out that Maimonides' devotion to logic and intellectual rigor did not make him a great innovator in either the theory or the practice of medical science, for his skepticism is based as much upon religious belief as upon experience or observation. Although much in the content of his writings agrees with modern notions of hygiene and sound medical treatment, these opinions are derived from the works of past authorities and from the ethics of Judaism, rather than from formal investigation.

To point out that Maimonides made no important discovery or scientific advance enables us to recognize that his greatest contribution to medicine was not that he overset previous authorities, but that he upheld them. His aim in all his medical work, including the treatise exposing the contradictions in Galen, was not to set his own ideas above those of past authorities, but to present their works in a way that he and other physicians of his time could accept. He was an empiricist, but only an incidental one, for as a religious man he accepted the logic of faith and venerated the past. In the history of science, as in the history of Judaism, he was a rabbi, not a prophet. He sought only to codify and disseminate knowledge, without making claim to revelations direct from the source. In this he was above all a man of his time, for he lived in a period when the age of revelation in religion was long past, and the true prophets of science had not yet been born.

BIBLIOGRAPHY

1. Minkin JS: The World of Moses Maimonides, with Selections from his Writings. New York, Thomas Yoseloff, Inc, 1957, pp 16–18
2. Bratton FG: Maimonides: Medieval Modernist. Boston, Beacon Press, 1957, pp 67–68
3. Encyclopedia Judaica: Articles of Faith. Jerusalem, Keter Publishing House, 1972, Vol 3, 654–659
4. Yellin D, Abrahams I: Maimonides: His Life and Works. 3rd ed. Revised and with an introduction by JI Dienstag. New York, Hermon Press, 1972, pp 57–60
5. Maimonides M: Mishneh Torah: Maimonides' Code of Law and Ethics. Abridged and translated from the Hebrew by P. Birnbaum New York, Hebrew Pub Co, 1974, XXV
6. Macht DI: Moses Maimonides in Memoriam, 1205–1905 C.E. Johns Hopkins Hospital Bull 17:334, 1906
7. Macht DI: Moses Maimonides, Physician and Scientist. Bull Inst Hist Med 3:585–598, 1935
8. Schreiber E: The Jews in Medicine. Chicago, GP Engelhard and Co, 1902, p 5
9. Campbell D: Arabian Medicine. London, Kegan Paul, Trench, Trubner & Co, Ltd, 1926, Vol I, p 98
10. Friedenwald H: Moses Maimonides the Physician. Bull Inst Hist Med 3:555–583, 1935
11. Maimonides M: The Medical Aphorisms of Moses Maimonides. Translated and edited by F Rosner, S Muntner. New York, Yeshiva University Press, 1970, Vol I, p 9
12. Meyerhoff M: The Medical Work of Maimonides. In Essays on Maimonides. Edited by SW Baron. New York, Columbia University Press, 1941, p 274
13. Maimonides M: The Preservation of Youth: Essays on Health. Edited and translated by HL Gordon. New York, Philosophical Library, 1958
14. Maimonides M: Treatise on Hemorrhoids, Medical Answers (Responsa). Translated and edited by F Rosner, S Muntner. Philadelphia, JP Lippincott Co, 1969
15. Maimonides M: Treatise on Asthma. Edited by S Muntner. Philadelphia, JP Lippincott Co, 1963

16. Gorlin M (ed): Maimonides on Sexual Intercourse. Brooklyn, Rambach Pub Co, 1961, p 25
17. Kagan SR: Maimonides' Prayer. Ann Med Hist (2nd series) 10:429–432, 1938
18. Friedenwald H: The Ethics of the Practice of Medicine from the Jewish Point of View. In The Jews in Medicine. New York, KTAV Pub House, 1967, Vol I, p 28
19. Savitz HA: Maimonides' Hygiene of the Soul. Ann Med Hist WS 4:80–86, 1932
20. Rosner F: Sex Ethics in the Writings of Moses Maimonides. New York, Bloch Pub Co, 1974, pp 7–8
21. Kipling R: Rikki-Tikki-Tavi. In Captains Courageous and Other Stories. New York, Dodd Mead and Co, 1959, p 196